



INTERNATIONAL  
COMMUNICATIONS,  
INC.

STAT

PROPRIETARY TO FBIS

October 29, 1985

Foreign Broadcast Information Service  
P.O. Box 2604  
Washington, D.C. 20016

STAT

Re: RFP 16-85

COMSAT International attaches to this letter our responses to your questions relating to our proposal to provide the U.S. earth station and related microwave link for INTERNET communications services.

Copies of data sheets put out by the manufacturers of the proposed equipment which COMSAT International plans to use in the construction of the earth station and related microwave link are enclosed for your review. If you need additional data sheets about any piece of equipment, we will make every effort to obtain them for you.

Should you have any questions or need additional information about our responses, please feel free to contact me or Jim McKenna at your convenience.

Sincerely,

STAT

Enclosures

cc:

STAT

950 L'Enfant Plaza, SW  
Washington, DC 20024  
Telephone 202-863-6235  
Telex 892668

RESPONSES TO QUESTIONS

Q1. How do you propose to transmit the 300 KHz wideband FM signal via the Quantico to Key Building Microwave System?

A. It is COMSAT's understanding that the 300 KHz signal referred to above consists of a baseband signal with frequencies ranging from 60 KHz to 128 KHz (300 KHz refers to nominal carrier deviation). This signal will be applied to channel 3 of the service channel converter (see paragraph 3.9.2 of COMSAT International's proposal). Channel 3 has a baseband bandwidth of 16 KHz to 130 KHz. The output of the service channel converter will be a single sideband suppressed carrier signal at a nominal frequency of 9.023 MHz. This signal will be combined with the video and program audio carriers and will then be frequency modulated directly onto the terrestrial microwave link carrier and transported over the microwave facilities to the Quantico earth station. At the Quantico earth station all signals will be demodulated to baseband frequencies before being remodulated onto their assigned earth station SCPC carriers. Similarly, the SCPC carriers from the satellite are demodulated to baseband at Quantico and remodulated onto the terrestrial microwave link carrier for transmission to Rosslyn.

Q2. The RFP calls for one each 300 KHz wideband FM/SCPC channel. Your proposal talks about 60 KHz modulators and demodulators (pg. 250). How do you explain this? On page 3-22, the technical characteristics of the FM/SCPC exciter appears to satisfy the 300 KHz requirement. Please clarify.

A. As explained in question one above, it is COMSAT International's understanding that the 300 KHz wideband FM/SCPC signal actually refers to a baseband signal of 60 KHz to 128 KHz with a nominal RMS test tone deviation of 300 KHz. This carrier has been referred to alternately as a 60 KHz or a 300 KHz wideband FM/SCPC carrier. Therefore, the 60 KHz modulators/demodulators imply the 300 KHz RMS deviated carrier.

The technical specifications provided on page 3-22 of the COMSAT International proposal are the specifications of the exciter which COMSAT International proposes to use for the above referenced wideband FM carrier. The modulator will accept a baseband signal in the range of 4 KHz to 156 KHz. The deviation will be set so that a nominal test tone level will provide a carrier deviation of 300 KHz RMS.

-2-

Q3. It is mandatory to know who manufactures the proposed antenna and equipment along with copies of their data sheets (specifications). For example, page 3-21 states that the wideband SCPC receiver is tunable by front panel thumbwheel switches over 3.7 to 4.2 GHz while table 3-7 makes no mention of the receiver being tunable.

A. Attachment 1 provides the manufacturers and model numbers of the proposed equipment and copies of all currently available manufacturer's data sheets.

Q4. RFP says dedicated to FBIS. Introductory letter says otherwise, please clarify.

A. COMSAT International proposes an earth station dedicated to FBIS service, and the rate for FBIS service does not assume additional traffic. However, we would like to point out that it may be advantageous for FBIS to share this earth station with circuits of such other users as are acceptable to FBIS.

Q5. Is microwave hot standby?

A. Since the proposed microwave system consists of high quality, highly reliable equipment, COMSAT International has concluded that hot standby equipment will not be required in the basic proposal in order to maintain the 99% overall system availability specified in the RFP. COMSAT International has, however, proposed hot standby microwave equipment as an option.

Q6. Are there subcarriers other than 6.6 or 6.65?

A. Audio subcarrier frequencies of 6.60 and 6.65 MHz are standard TV audio subcarrier frequencies used in the Intelsat system for the transmission of 525 and 625 line television signals of NTSC, PAL and SECAM formats. The modulator and demodulator which COMSAT International has selected for the FBIS television transmission may be operated at audio subcarrier frequencies anywhere from 5.8 to 8.3 MHz. As the INTERNET television signals are carried in a dedicated transponder, the audio subcarriers need not adhere to standard Intelsat practices, and the frequency selected for INTERNET service will assure the proper transmission of the NTSC, PAL and SECAM television signals. The audio and video interface at Rosslyn will be for all television standards at baseband (video: 1 volt p-p, 75 ohms; audio: 0 dBm, 600 ohms balanced). See also Table 3-8 of our proposal.

-3-

Q7. Unattended operation? Define meaning per RFP.

A. As described in Section 5.1 of the COMSAT International proposal, we propose 24-hour per day, 7 days per week manning of the Quantico earth station during the first year of operation. Toward the end of the first year, the need for 24-hour manning should be reevaluated by FBIS and COMSAT International. Thus, Section 5.7 of our proposal applies to possible operation in later years if the station is not manned. It is under this type of operation that a technician would be dispatched periodically (Section 5.7.2) to perform preventive maintenance routines and to conduct operational checks. We regret the lack of clarity regarding this in Section 5.7.2 and the error in the Cost proposal regarding the proposed O&M approach.

## Equipment List and Copies of Manufacturer's Data Sheets of Major Items (Basic Proposal)

<u>Equipment</u>	<u>Manufacturer</u>	<u>Model</u>
<u>Earth Station</u>		
a. Antenna, 15 meter, C-band	Vertex	5265
b. LNA, 35K	LNR	NC4335
c. Klystron, 3.35K	LNR	YZU-27006/GEN II
d. Upconverter	LNR	p/o UEV6
e. Downconverter	LNR	p/o DRV4
f. Modulator/Demodulator 15 KHz	Coastcom	412
g. Modulator/Demodulator 8 KHz	Coastcom	412
h. Modulator, 4-156 KHz	STS	Mod 700
i. Demodulator, 4-156 KHz	STS	DEM 700
j. Modulator, TV	LNR	p/o UEV6
k. Demodulator, TV	LNR	p/o DRV4
l. Upconverter, C-band	STS	UC 6010
m. Downconverter, C-band	STS	DC 4010
n. Group Delay Equalizer	STS	DEQ 700

Terrestrial Microwave Equipment

a. Microwave Transceiver Unit 2 CH	MACOM	MA23VFM
b. Microwave Transceiver Unit, 2 CH	MACOM	MA-6G
c. Program Channel Modulator	MACOM	PAC10
d. Program Channel Demodulator	MACOM	PAC12
e. Service Channel Converter 130 KHz	MACOM	SC1
f. Antenna, Microwave*	Andrew	---
g. Dehydrator*	Andrew	4025A

\* Data sheets not available at present.